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10/809,229

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Kishore Karighattam

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EXAMINER

TRUONG, LECHI

ART UNIT

PAPER NUMBER

2194

NOTIFICATION DATE

DELIVERY MODE

03/19/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Docketing@eschweilerlaw.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/809,229	<b>Applicant(s)</b> KARIGHATTAM ET AL.	
	<b>Examiner</b> LECHI TRUONG	<b>Art Unit</b> 2194	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 December 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 and 25 is/are rejected.
- 7) ☐ Claim(s) 2-3, 9-11, 12-13, 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1-23, 25 are presented for the examination.

#### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-13 are rejected under 35 U.S.C. 101 because they are directed to non-statutory subject matter.
3. Claim 1 is non-statutory because it is software per se embodied in a manner so as to be executable as the only hardware.
4. Claim 1 defines “ System” in the preamble and the body of the claim recites “ an operating system dependent module”, “ an operating system independent module” , “ media independent module”, “ a media dependent module” . An operating system dependent module, an operating system independent module, media independent module, a media dependent module appear to be software modules . Therefore, claim 1 is non-statutory because it recites a system claim that comprises software per se embodiments.
5. Claims 14-25 directed to the method claims that would not qualify as a statutory process would be a claim that recited purely mental steps. Thus, to qualify as a 101 statutory process, the claim should be positively reciting the other statutory class (the thing or product) to which it is tied, for example by identifying the apparatus that accomplishes the method steps. Appropriate correction is required to add the computer or hardware tied to the step of the methods.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. The claim language in the following claims is not clearly understood:

- i. As to claim 1 , it is not clearly indicated what is relationship between an operating system dependent module , a network device independent module and network device dependent module, it is uncertain what the relationship is an operating system dependent module and network device.
- ii. As to claim 14 , it is not clearly indicated what is relationship among steps of appending, converting and analyzing.

***Claim Objections***

7. Claim 25 is objected to because of the following informalities: The claim depended on the cancelled claim 24. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2194

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 4, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson (US 7032227 B2) in view of Black (US 5684962 A) in view of Lin (US 6775832 B1) and further in view of Narisi (US 6233619 B1).

**As to claim 1,** Wilkinson teaches the invention substantially as claimed including: A layered network device driver system (col 5, ln 60-65), an operating system dependent module(an operating system running platform dependent code, col 3, ln 64-67), data( data, col 3, ln 64-67), an operating system dependent module operable to communicate in an operating system dependent format to initiate sending of transmit data and to provide received data( col 3, ln 64-67 to col 4, ln 1-6);

an operating independent module(platform independent code, col 2, ln 50-55), an operating system independent module that communicates with the operating system dependent module and performs processing on the transmit data and the received data( col 2, ln 50-55/ col 3, ln 63-67 to col 4, ln 1-6);

network independent module( driver drivers, col 5, ln 60-65), that places the transmit data , and obtains the received data ( col 2, ln 51-57/ col 3, ln 62-67/ col 4, ln 1-5/ Fig. 1) , dependent module( theming 20, col 6, ln 10-12/ Fig. 1), network dependent module configured to communicate with media independent module ( col 3, ln 63-67 and col 4, ln 1-6), one or more type of devices(device types, e.g., PDAs, cell phones, etc , col 6, ln 45-50), and with one or

Art Unit: 2194

more types of network devices and control the one or more types of network devices to send the transmit data (col 6, ln 45-55).

Wilkinson does not teach the one or more transmit descriptor rings and to receive the received data into the one or more receive descriptor rings in one or more transmit descriptor rings. However, Black teaches the one or more transmit descriptor rings and to receive the received data into the one or more receive descriptor rings (communicating between two processors, one embodiment of the invention provides a single queue or descriptor ring which references several context control blocks, each of which corresponds to a different logical or physical data path in a communications system. An entry in the descriptor ring references an appropriate context control block and a source packet representing a packet location prior to processing, col 1, ln 39-50).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Wilkinson with Black to incorporate the feature of descriptor rings because this provides a communications technique that reduces the resources required.

Wilkinson and Black do not teach operating system dependent module configured to translate commands from the operating system into a format independent of the operating system, an operating system independent format error checking, receiving data in a manner that is independent of the operating system. However, Lin teaches operating system dependent module configured to translate commands from the operating system into a format independent of the operating system, an operating system independent format error checking, receiving data in a manner that is independent of the operating system(operating system dependent module

Art Unit: 2194

configured to translate commands from the operating system into a format independent of the operating system, an operating system independent format error checking, receiving data in a manner that is independent of the operating system, col 7, ln 5-16/The FCHIM 312 is an operating system independent common hardware interface module that receives FCHIM commands and translates the FCHIM commands into Fibre Channel commands for the Fibre Channel controller 306, col 7, ln 26-34).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Wilkinson and Black with Lin to incorporate the feature of operating system dependent module configured to translate commands from the operating system into a format independent of the operating system, an operating system independent format error checking, receiving data in a manner that is independent of the operating system because this allows for decreased development time, and reduce problems associated with modular development.

Wilkinson, Black and Lin do not teach network device independent module configured to communication specific network device information to the operating system independent module, wherein the specific network device information is communicated in a network device format that is independent of a network device associated with the host computer, providing information to the network device dependent module that facilitates the sending and transmitting of data. However, Narisi teaches network device independent module configured to communication specific network device information to the operating system independent module, wherein the specific network device information is communicated in a network device format that is independent of a network device associated with the host computer, providing information

Art Unit: 2194

to the network device dependent module that facilitates the sending and transmitting of data (Microsoft Corporation provides an implementation of the TCP/IP protocol in the form of a kernel level device driver, also referred to as a transport protocol driver, named TCPIP.SYS 58. TCPIP.SYS 58 interfaces with the NIC device driver 54 via NDIS 56, an industry standard Network Driver Interface Specification jointly developed by Microsoft and 3Com. NDIS 56 defines an interface for communication between hardware-independent protocol drivers, such as TCPIP.SYS 58, which implement the Data Link, Network, and Transport layers of the ISO model, and hardware-dependent NIC drivers 54 which provide an interface to the NIC hardware and which correspond to the Physical Layer of the ISO model, col 5, ln 1-12/ includes a messaging subsystem ("MSS") which provides general purpose transport interfaces which are independent of communication protocols of the interconnection and provides further interfaces on either end of the interconnection which are dependent on the communication protocols of the interconnection, whereby only the further interfaces must be changed when the interconnection is changed, col 8, ln 5-11).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Wilkinson, Black and Lin with Narisi to incorporate the feature of network device independent module configured to communication specific network device information to the operating system independent module, providing information to the network device dependent module that facilitates the sending and transmitting of data because this provides a more reliable network connection through which larger blocks of data may be transmitted without being broken up into smaller data chunks with prepended network protocol information.

Art Unit: 2194

**As to claim 4**, Wilkinson teaches the operating system dependent module is operable to receive a packet to be transmitted from the operating system in an operating system specific format (col 19, ln 64-67 to col 21, ln 1-5).

**As to claim 8**, Black teaches the media independent module is operable to access on or more data buffers of a packet associated with a received frame along with optional information (col 14, ln 30-36).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson (US 7032227 B2) in view of Black (US 5684962 A) in view of Lin ( US 6775832 B1 ) and further in view of Narisi(US 6233619 B1), as applied to claim 1 above, in view of Simmon (US 5867688 A).

**As to claim 5**, Wilkinson teaches operating system dependent module is further operable to convert the packet (col 19, ln 64-67 to col 21, ln 1-5).

Wilkinson, Black, Lin and Narisi do not teach convert the packet into an array based data structure, wherein the data structure comprises virtual pointers to one or more data buffers. However, Simmon teaches converting packets from the format stored in the temporary buffer 104 to message lists, col 14, ln 25-30/Each message list include the data structure, col 14, ln 63-67/The message list includes a pointer to the corresponding data string in the message buffer 110, col 14, ln 54-58).

Art Unit: 2194

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Wilkinson, Black, Lin and Narisi with Simmon to incorporate the feature of convert the packet into an array based data structure, wherein the data structure because this improves the packet transmission between the computers.

10. Claims 6, 7, 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson (US 7032227 B2) in view of Black (US 5684962 A) in view of Lin (US 6775832 B1) and further in view of Narisi (US 6233619 B1), as applied to claim 1 above, in view of Simmon (US 5867688 A) and further in view of Ohno (US 6892261 B2).

**As to claim 6**, Wilkinson, Black, Lin and Narisi and Simmon do not the operating system independent module is operable to convert the virtual pointers of the data structure into physical pointers. However, Ohno teaches the operating system independent module is operable to convert the virtual pointers of the data structure into physical pointers (each of said first and second operating systems include a conversion table used by said digital arithmetic processor for converting a virtual memory address to a physical address, col 11, ln 25-30/ OS-A and OS-B are independent logical address spaces corresponding to the independent page tables of the individual OS's, col 6, ln 5-10).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Wilkinson, Black, Lin , Narisi and Simmon with Ohno to incorporate the feature of convert the virtual pointers of the data structure into physical pointers

Art Unit: 2194

because this provides a higher real-time performance and reliability which can be established with a single CPU architecture.

**As to claim 7**, Black teaches the media independent module is operable to attach the one or more data buffers to a transmit descriptor, wherein the transmit descriptor is of the one or more transmit descriptor rings (col 7, ln 27-35).

**As to claim 20**, it is an apparatus claim of claims 1, 3, 7; therefore, it is rejected for the same reasons as claims 1, 3, 7 above. In additional, Black teaches freeing the one or more data buffers for other use (col 7, ln 49-55), identifying logically contiguous data buffers associated with virtual addresses of the array based data structure that store the packet and converting the virtual address into a single physical address( col 11, ln 25-30) and Black teaches attaching optional information to the transmit descriptor by an operating system independent module(col 1, ln 39-50).

**As to claim 21**, Wilkinson teaches the packet is obtained from the operating system by an operating system dependent module in an operating system specific format (col 4, ln 1-6).

**As to claim 22**, Simmon teaches coalescing the one or more data buffers into contiguous memory space (col 14, ln 27-31).

**As to claim 23**, Simmon teaches attaching the freed data buffers to a send queue for packets awaiting transmission (col 18, ln 51-60).

**As to claim 25**, Wilkinson teaches the optional information includes a virtual local area network type (col 6, ln 45-55).

Art Unit: 2194

11. Claims 14, 15, 16, 18, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simmon (US 5867688 A) in view of Nelson (US 6882654 B1) in view of McKeeth (US 6260140 B1) in view of O'Connor (US 20050177701 A1).

**As to claim 14**, Simmon teaches obtaining a received packet and generating an array based data structure from the received packet that includes one or more pointers to one or buffers (converting packets from the format stored in the temporary buffer 104 to message lists, col 14, ln 25-30/Each message list include the data structure, col 14, ln 63-67/The message list includes a pointer to the corresponding data string in the message buffer 110, col 14, ln 54-58), performing error checking on the appended array by an operating system independent module( col 11, ln 20-30)

Simmon does not teach analyzing status information of the packet and duplicating the packet; causing the one or more data buffers to be freed; analyzing the duplicated packet for errors. However, Nelson teaches analyzing status information of the packet and duplicating the packet, analyzing the duplicated packet for errors; (In order to analyze the Layer 7 data, received packet data is also rearranged into its proper order and any duplicates and errors are removed, col 1, ln 23-25), causing the one or more data buffers to be freed (the buffer are free, col 2, ln 14-16).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Simmon with Nelson to incorporate the feature of analyzing status information of the packet and duplicating the packet; causing the one or more

Art Unit: 2194

data buffers to be freed; analyzing the duplicated packet for errors because this provides more efficient ways to analyze and buffer packet data.

Simmon and Nelson do not teach passing the duplicated packet to an operating system for further processing. However, McKeeth teaches passing the duplicated packet to an operating system for further processing (Once the data file changes are modified for OS #1, they are copied into the appropriate OS #1, col 5, ln 50-53).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Simmon and Nelson with McKeeth to incorporate the feature of passing the duplicated packet to an operating system for further processing because this automatically integrate the settings and preferences of multiple operating systems installed in an OS multi boot environment.

Simmon , Nelson and McKeeth do not teach appending the array based data structure, by filling in a null pointer with an optional array that consists of optional parameters and size, by a network device independent module; converting each virtual pointer to a physical address by a network device independent module by an operating system dependent module. However, O'Connor teaches appending the array based data structure, by filling in a null pointer with an optional array that consists of optional parameters and size, by a network device independent module; converting each virtual pointer to a physical address by a network device independent module by an operating system dependent module (MMU 104 receives a virtual address, process block 302. A determination is made whether a translation for the virtual address is stored, for example, in TLB 202, process block 304. If so, the physical address is retrieved, process block 306. If not, a determination is made whether the upper bits, for example, the upper seven bits, of

Art Unit: 2194

the virtual address are null, that is, equal to zero, process block 308. If so, the upper bits are replaced with the process identifier (PID), process block 310. Next, using the PIDified virtual address, that is, the modified virtual address (MVA), a page table walk is performed, generating the physical address, process block 312. TLB 202 may be updated with the new virtual address-to-physical address translation, para[0024], ln 1-10).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the teaching of Simmon , Nelson and McKeeth with O'Connor to incorporate the feature of appending the array based data structure, by filling in a null pointer with an optional array that consists of optional parameters and size, by a network device independent module; converting each virtual pointer to a physical address by a network device independent module by an operating system dependent module because this speeds up the paging translations for some of the generated virtual address-to-physical address translations.

**As to claim 15**, Simmon teaches attaching the one or more freed data buffers to an adapter queue for incoming received frames (col 18, ln 51-60).

**As to claim 16**, Nelson teaches the received packet is received by a network device (col 5, ln 23-27); Simmon teaches placed initially in an adapter queue (col 18, ln 51-60).

**As to claim 18**, McKeeth teaches duplicating the packet comprises placing a duplicate copy of the packet in a duplicate queue (col 10, ln 3-10).

**As to claim 19**, McKeeth teaches an operating system dependent module converts the duplicated packet into an operating system compatible format prior to passing the duplicated packet to the operating system ( col 5, and ln 45-53)

***Allowable Subject Matter***

12. Claims 2-3, 9-11, 12-13, 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LeChi Truong whose telephone number is (571) 272-3767. The examiner can normally be reached on 8 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIP. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIP system, contact the Electronic Business Center (EBC) at 866-217-9197(toll-free).

Application/Control Number: 10/809,229

Page 15

Art Unit: 2194

/LeChi Truong/

Examiner, Art Unit 2194

LeChi Truong

March 17, 2009